INVERSE ALIGNMENT

The Inverse Alignment command creates and stores a new chain name where the coordinates of POT's and PI's are known, and one given element of a circular curve may be inserted between to tangents. The direction of these tangents may be adjusted to an even value of minutes or seconds.

INVERSE ALIGNMENT STRUCTURE

|	
ALI name INV	opening command to activate the inverse alignment
POT command	required for each POT
CURve command	required for each curve
END ALIgnment command	closing command to initiate the calculation process and generate the new chain "name by orderly linking the given elements

ALI name INV for INVERSE ALIGNMENT. The ALI name INV command activates the inverse alignment group of commands and is the first statement required to generate the new 'chain name'. (ROU value SEC) or (ROU value MIN) defines the rounding to be applied to the directions of the given tangent between POT's or PI's.

FORMAT A: POT's and curve PI's remain unchanged during the calculation

ALIgnment name INVerse
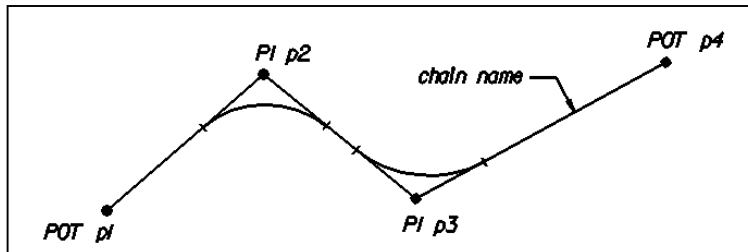
FORMAT B or C: The directions of the tangents are adjusted to the nearest even value of minutes or seconds, and POT's and PI's are redefined (first POT, *p1* is unchanged).
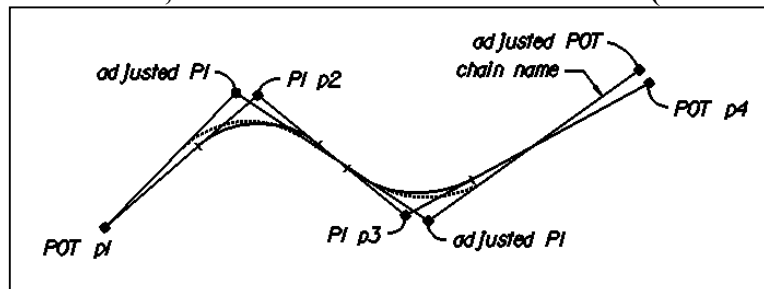
FORMAT B OR C
ALIgnment name INVerse round value SECond
ALIgnment name INVerse round value MINutes

POT COMMAND FOR INVERSE ALIGNMENT. The POT commands define the starting and ending point of the new alignment or chain name, as well as any intermediate intersection point without a circular curve.

FORMAT A: PI's *p1*, *p2*, and *p3* defined by point already stored

POT *pa* **(FIX)**   **(STA**tion **station)**
POT 10 STA 10+00.00   this is the default comman**d**

FORMAT B: POT *pi* is redefined with it coordinates N northing E easting. *Coordinated may be adjusted when the ROUND option is present.*

POT *pi*   **N northing E easting**   **(FIX)**   **(STA**tion **station)**
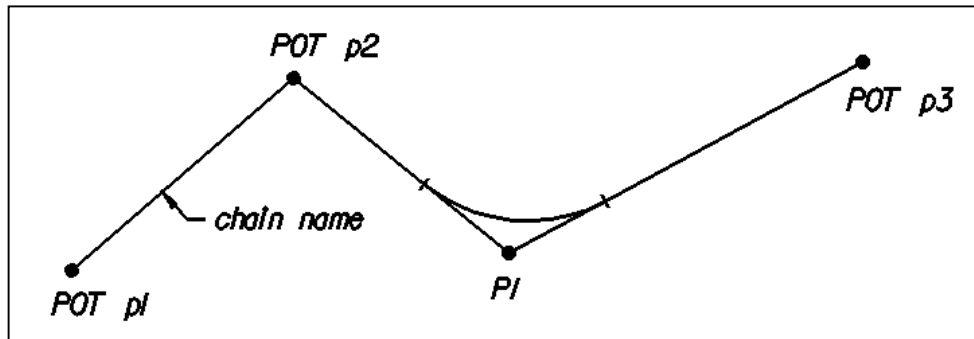**POT 20 N 967352.1710 E 2399059.2480**   this is the default command

Optional 'FIX"

FORMAT A: POT's p1, p2, and p3 are defined by points already stored. *The coordinates are fixed when the ROUND option is present.*

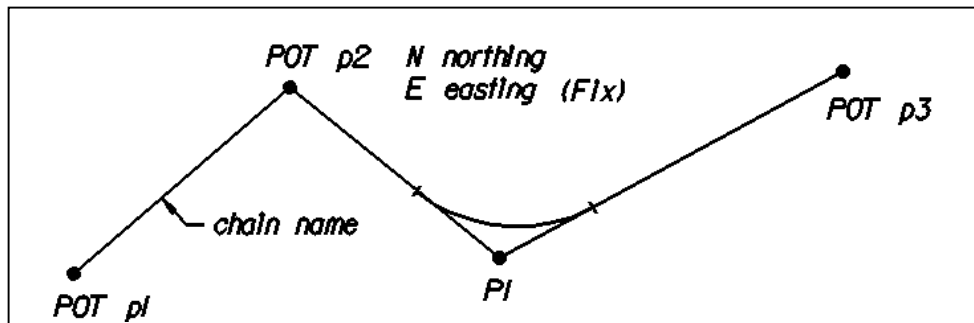**POT** *pa* **(FIX)**
POT 10 FIX STA 10+00.00

FORMAT B: POT *pi* is redefined with it coordinates N northing E easting. *Coordinated are fixed when the ROUND option is present.*

POT *pi*   **N northing E easting**   **(FIX)**   **(STA**tion **station)**
POT 20 N 967352.1710 E 2399059.2480 FIX

**CURVE NAME COMMAND FOR INVERSE ALIGNMENT** The Curve Name
command defines a new curve 'name" at *PI pa* by inserting an arc between the two
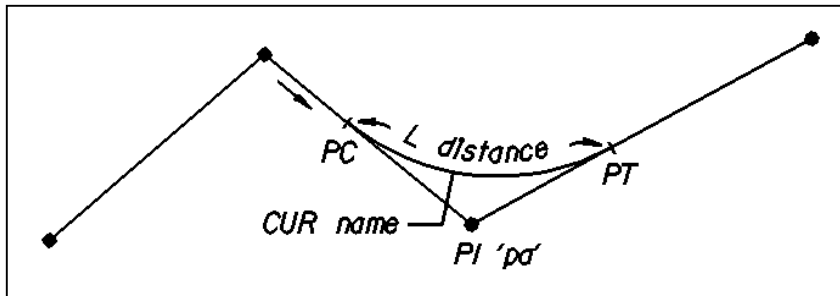tangents with a radius given or derived from *angle* D*egree* or *distance* L*ength.*

**FORMAT A: The curve Name is defined with the degree of curvature D angle
inserted between the two tangents at previous stored PI *pa.***

<u>**CUR**ve **name**</u>   <u>**PI** *pa*</u>   (<u>**FIX**</u>)   <u>**Degree angle**</u>
CUR C12   PI 20   D 2 30
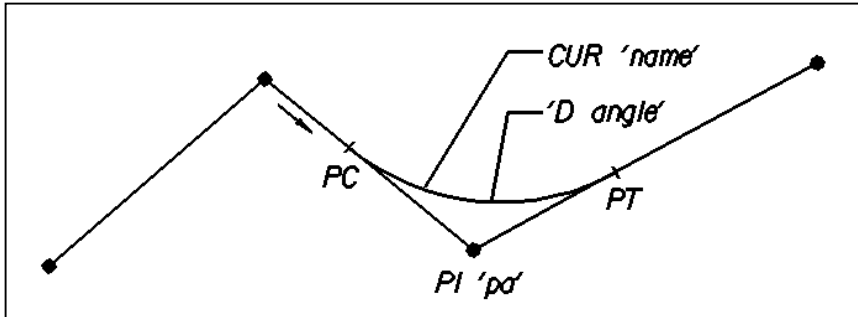
FORMAT B: **The curve name is defined with the arc L distance inserted between
the two tangents at previously stored PI pa.** *XY coordinates can also be utilized if the
GEOPAK user preferences are set to XY.* **This <u>PI</u> may be adjusted when the ROUND
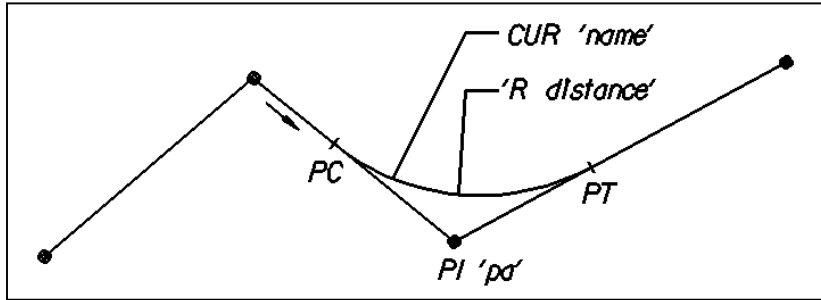option is used and FIX is not used.**

<u>**CUR**ve **name**</u>   <u>**PI** *pa*</u>   (<u>**FIX**</u>)   <u>**Length distance**</u>
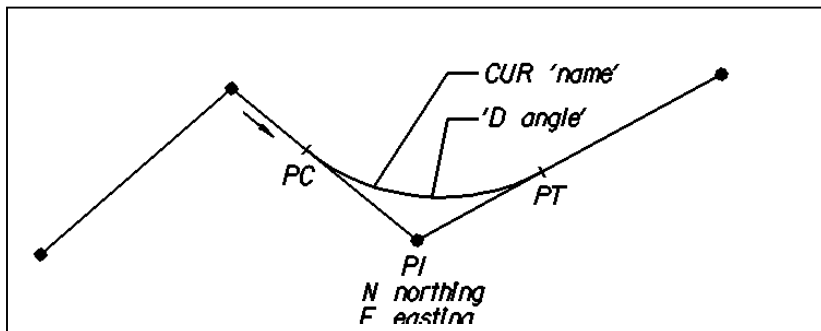**CUR C12   PI 29   L 275.68**

FORMAT C: The curve name is defined with the radius of curvature R distance inserted between the two tangents at previously stored PI pa. This PI may be adjusted when the ROUND option is present and FIX is not given.

CURve name   PI pa   (FIX)   Radius distance
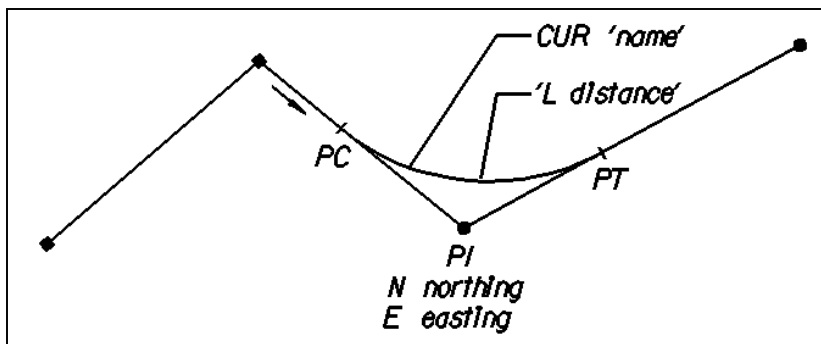**CUR C12   PI 29   R 400**

FORMAT D: The curve name is defined with the degree of curvature D angle inserted between the two tangents at PI redefined with its new coordinates N northing, E easting. This PI may be adjusted when the ROUND option is pres3ent and FIX is not given.

CURve name   PI N northing E easting   (FIX)   Degree angle
CUR C12   PI N 5010208   E 11000100   D 34 43 00

FORMAT E: The curve name is defined with the length of the arc L distance inserted between the two tangents at PI redefined with its new coordinates N northing E easting. This PI may be adjusted when the ROUND option is present and FIX is not given.

CURve name   PI N northing E easting   (FIX) Length distance
CUR C12   PI N 5010208   E 11000100   L 275.68

FORMAT F: The curve name is defined with the radius of curvature R distance inserted between the two tangents at PI redefined with its new coordinates N northing e easting. This PI may be adjusted when the ROUND option is present and FIX is not given.
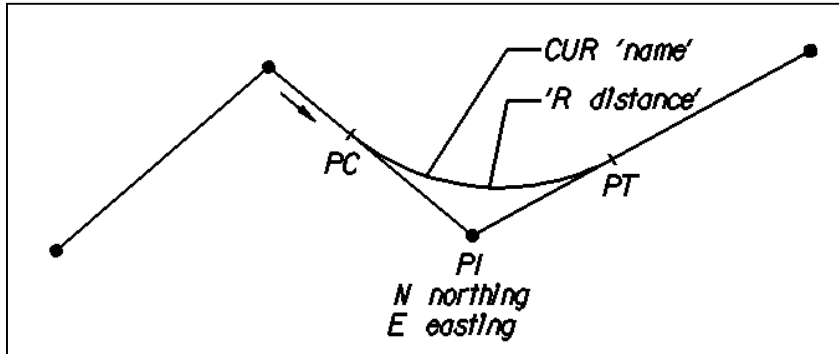
CURve name   PI N northing E easting   (FIX)   Radius distance
CUR C12   PI N 5010208 E 11000100   R 400

END ALIGNMENT COMMAND FOR ALIGNMENT. The END ALI command initiates the calculation process of the new chain name with or without rounding, stored curves, POT's and chain and deactivates the inverse alignment definition. Format C also describes the chain name as stored.

FORMAT A: END ALIgnment

FORMAT B: END ALIgnment name

FORMAT C: END ALIgnment name DEScribe

EXERCISE 5: WRITE ALIGNMENT FOR THIS CHAIN Y3
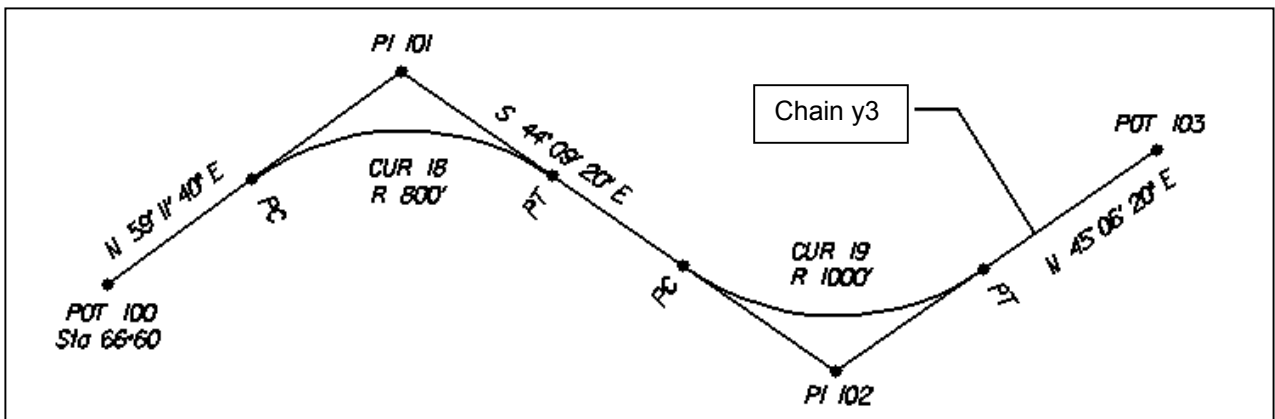
NOTE :100 TO 101 IS 1789; 101 TO 102 IS 1923; AND 102 TO 103 IS 2100

134569.8880
6021624530

610

WRITE INPUT FOR LINE Y40

USE COMMANDS
INTERSECT & EQUATE

Pls Sta 2+90.02
θs - 4° 54' 39.8"
Ls - 60.00'
LT = 40.02'
ST - 20.01'

SCS110

PI Sta 3+83.95
△ - 23° 51' 33.7" (LT)
D - 16° 22' 12.8"
L - 145.75
T = 73.95'
R - 350.00'

Pls Sta 4+79.10
θs - 5° 43' 46.5'
Ls - 70.00'
LT = 46.69'
ST - 23.36'

INTESECT CHA Y40 AT STA 7+00

POT Sta. 0+00.00

250.000

S 60° 30' 0.0" E

611

TS Sta. 2+50.00

SCS Sta. 3+10.00

CS Sta. 4+55.75

ST Sta. 5+25.75

134866.8540
602672.2320

612

617

CIII

PI Sta 8+90.00
△ - 18° 15' 00.0' (RT)
D = 14° 19' 26.2"
L - 127.41'
T - 64.25'
R - 400.00'

300.000

N 85° 00' 0.0" E

613

PC Sta. 8+25.75

POT Sta. 10+03.16

PT Sta. 9+53.16

614

S 76° 45' 0.0" E

615

S 72° 46' 0.0" E

POT Sta. 11+53.16

150.000

3 030' 0.0" E

616
134359.4910
603263.5810